

in correlation with the development of the acid and alkaline glands of that species.

This paper also records a number of miscellaneous observations upon the cleanliness of ants' nests, the vitality of queens, etc. and portions of the paper are republished in Nos. 12 and 13.

Note 18 is a valuable contribution to the literature upon the hymenopterous sting. The organ in *Myrmica* is thoroughly described and figured, the results of other workers being supplemented by numerous original observations. The apparatus controlling the flow from the poison gland is described for the first time in Note 18, from which No. 14 is an extract.

Note 19 is an important paper of nearly sixty pages upon the anatomy of the thoracic region which, as including the median segment, is termed *corselet*. Eight clear figures express the forms and relations of the thoracic sclerites. Only one who has undertaken a similar subject can appreciate the success with which the author has explained the positions and functions of the thoracic muscles, especially those concerned in flight. Although the paper deals chiefly with a single species in a purely descriptive way, the character and number of the illustrations, abundantly facilitate the comparison of *Myrmica* with other groups by the morphologist. Paper No. 15 is a repetition of a part of Note 19.

The amount of study represented by the interesting papers of Janet is frequently disguised by the author's conciseness of expression.

### THE PANURGINE BEES.

With reference to Mr. Ashmead's article on pp. 372-376, the following remarks may be appropriate:—

(1.) *Perdita* (*Cockerellia*) *hyalina* ♂ has the hind claws simple, and the front and middle claws deeply cleft. So also *pasonis*

and other allied forms. I have examined Cresson's type of *hyalina* in Philadelphia. The ♂ of *beata*, the type of *Philoxanthus*, is unknown.

(2.) *Parandrena* Rob., has nothing to do with *Panurginus*!

(3.) *Biarcolina* is ordinary *Andrena* with two submarginal cells; *Callandrena* is apparently derived from a very distinct section of *Andrena* belonging to North America (*A. pulchella* &c.). It is quite impossible to imagine that these genera have any blood-relationship, except through *Andrena*; consequently, they cannot be united.

(4.) *Hemihalictus* is I believe, an American derivative of *Halictus*, its resemblance to *Dufourea* being due to convergence. There is a marked difference in the venation, the first recurrent nervure in *Dufourea* joining the second submarginal cell at its extreme base, while in *Hemihalictus* it joins it not far from the middle. Mr. Ashmead tells me, however, that he has seen an undescribed species presenting intermediate characters.

(5.) *Uesperapis* (not *Hesperapis*) is very distinct from *Rhopitoides* by the short dagger-like tongue, as originally described by me.

(6.) *Pseudopanurgus* is a compact and easily recognized group, belonging to the arid region; it is a matter of taste whether one calls it a genus or a subgenus of *Panurginus*.

(7.) *Nomadopsis* I can now accept, because the species on which it was founded is not the *Perdita zonalis* Cr., but a species quite distinct from any *Perdita*. I had the pleasure of seeing it recently in the Nat. Museum.

It is hardly necessary for me to say, that I value extremely Mr. Ashmead's table of bees; and disagreement as to details must not be taken for disparagement of the whole.

T. D. A. Cockerell.

N. M. Agr. Exp. Sta.

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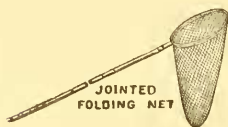
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